Guide to Vaccine Contraindications and Precautions

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INTRODUCTION

This guide summarizes CDC's recommendations regarding common symptoms and conditions that do and do not contraindicate vaccines licensed in the United States:

Anthrax	**Human Papillomavirus (HPV)**	**Rotavirus**
BCG	**Influenza (TIV & LAIV)**	**Td**
DTaP	**Japanese Encephalitis (JE)**	**Tdap**
DT	**MMR**	**Typhoid**
Hepatitis A (HA)	**Meningococcal Vaccines (MPSV & MCV)**	**Vaccinia (non-emergen**
Hepatitis B (HB)	**Pneumococcal Vaccines (PPV &PCV)**	**Varicella**
***Haemophilus influenzae* type b (Hib)**	**Polio (IPV)**	**Yellow Fever (YF)**
	Rabies	**Zoster**

The guide is arranged alphabetically according to symptoms and conditions which may, correctly or not, be perceived as contraindications to vaccination.

- **The first column states the symptom or condition.**
- **The second column lists individual vaccines, when recommendations differ by vaccine.**
- **The third column states whether or not a person with that symptom or condition should be vaccinated.**

Notes describe exceptions and special situations, or provide additional information.

When assessing a patient with multiple symptoms, if any one of them is a contraindication, do not vaccinate.

If there is a contraindication to any component of a combination vaccine, do not use that combination.

Contents:

CONTRAINDICATIONS & PRECAUTIONS

Symptom or Condition		Vaccine(s)	Vaccinate?
Allergy (anaphylactic)	*to any vaccine component (See Appendix A)*	All	No
	to 2-phenoxyethanol	HA (HAVRIX only) All Others	No Yes
	to alum	HA All Others	No Yes
	to yeast	HB HPV All Others	No No Yes
	to duck meat or duck feathers	All	Yes
	to eggs	Flu YF All Others	No (See note 1) No Yes
	to gelatin	MMR Varicella Zoster All Others	See Note 2 See Note 2 No Yes
	to latex	All	See Appendix B
	to neomycin	IPV MMR Varicella Zoster All Others	No No No No Yes
	to penicillin	All	Yes
	to polymyxin B	IPV All Others	No Yes
	to proteins of rodent or neural origin	JE All Others	No Yes
	to streptomycin	IPV All Others	No Yes
	nonspecific or nonanaphylactic	All	Yes
	in relatives	All	Yes
	to thimerosal	DTaP Flu (Inactivated) HB JE MPSV Td/DT All Others	See Note 3 See Note 3 See Note 3 No See Note 3 See Note 3 Yes
Anaphylactic (life-threatening) reaction to previous dose of vaccine		All	No (See Note 4)

Symptom or Condition		Vaccine(s)	Vaccinate?
Anthrax, prior infection		Anthrax All Others	No Yes
Antimicrobial therapy (current)		Flu (LAIV only) Typhoid Varicella Zoster All Others	Yes (See Note 5) Yes (See Note 6) Yes (See Note 7) Yes (See Note 8) Yes
Asplenia (anatomic or functional)		All	Yes
Aspirin or salicylate therapy (children or adolescents)		Flu (LAIV only) All Others	No Yes
Bleeding Disorders		All	Yes (See Note 9)
Breastfeeding	*Vaccinate nursing infant?*	All	Yes
	Vaccinate lactating mother?	All	Yes
Convalescing from illness		All	Yes
Convulsions (fits, seizures), family history (including epilepsy)		DTaP All Others	Yes (See Note 10) Yes
Diarrhea (See Illness: Concurrent)			
Encephalopathy (See "Reaction after a previous dose of DTaP," Appendix C)			
Exposure to infectious disease (recent)		All	Yes
Fever	*Low-grade fever with or without mild illness*	All	Yes
	Fever with moderate to severe illness	All	See Note 11
Guillain Barré Syndrome (GBS) (history of)		DTaP Flu (LAIV) Flu (Inactivated) MCV Td Tdap All Others	See Note 12 No See Note 13 No (See Note 14) See Note 15 See Note 15 Yes
Heart Conditions		Flu (LAIV only) All Others	See Note 16 Yes
Hematopoietic Stem Cell Transplant (HSCT)		All	See Note 17

Symptom or Condition		Vaccine(s)	Vaccinate?
HIV Infection	*in recipient (asymptomatic)*	BCG Flu (LAIV only) MMR Rotavirus Typhoid (Ty21a only) Varicella YF All Others	No No See Note 18 See Note 19 No See Note 20 No Yes
	in recipient (symptomatic)	BCG Flu (LAIV only) MMR Rotavirus Typhoid (Ty21a only) Varicella YF Zoster All Others	No No See Note 21 See Note 19 No See Note 20 No See Note 22 Yes
	in household contact	Flu (LAIV only) All Others	No Yes
IG (Immune Globulin) administration, recent or simultaneous (Either intramuscular or intravenous)		MMR Varicella All Others	See Note 23 See Note 24 Yes
Illness: Concurrent	*Acute: mild (with or without low-grade fever)*	Flu (LAIV only) All Others	See Note 25 Yes
	Acute: moderate to severe (with or without fever)	Flu (LAIV only) All Others	See Note 25 See Note 11
	Chronic	Flu (LAIV only) Rotavirus All Others	See Note 26 See Note 27 See Note 28
Immunodeficiency (See also "HIV Infection" and "Hematopoietic Stem Cell Transplant" above)	*in recipient (hematologic and solid tumors, congenital immunodeficiency, long-term immunosuppressive therapy, including steroids)*	BCG Flu (LAIV only) MMR PPV Rabies Rotavirus Typhoid (Ty21a only) Varicella YF Zoster All Others	No No No Yes (See Note 29) See Note 30 See Note 19 No See Note 31 No See Note 32 Yes
	family history	Varicella All Others	See Note 33 Yes
	in household contact	Flu (LAIV only) All Others	See Note 34 Yes

Symptom or Condition		Vaccine(s)	Vaccinate?
Intussusception, history of		Rotavirus All Others	See Note 35 Yes
Neurologic disorders, underlying (including seizure disorders, cerebral palsy, and developmental delay)		DTaP Tdap All Others	See Note 36 See Note 37 Yes
Otitis media	*mild (with or without low-grade fever)*	All	Yes
	moderate or severe (with or without fever)	All	See Note 11
	resolving	All	Yes
Pregnancy	*in recipient*	Anthrax BCG Flu (LAIV only) HA HPV IPV JE MMR PPV Td Tdap Typhoid Varicella YF Zoster All Others	No (See Note 38) No No See Note 39 No (See Note 40) See Note 41 See Note 42 No (See Note 43) See Note 44 See Note 45 See Note 45 See Note 44 No (See Note 43) See Note 46 No (See Note 43) Yes
	in mother or household contact of recipient	All	Yes
Prematurity		HB Rotavirus All Others	Yes (See Note 47) Yes (See Note 48) Yes (See Note 49)
Reaction to a previous dose of vaccine	*anaphylactic (life-threatening)*	All	No (See Note 50)
	local (mild-to-moderate soreness, redness, swelling)	All	Yes
Reaction after a previous dose of diphtheria-, tetanus-, or pertussis-containing vaccine (See Appendix C)			
Sudden infant death syndrome (SIDS), family history		All	Yes
Steroids (See "Immunodeficiency," p. 4)			
Thrombocytopenia, or history of thrombocytopenic purpura		MMR All Others	See Note 51 Yes

Symptom or Condition		Vaccine(s)	Vaccinate?
Tuberculin skin testing, performed simultaneously with vaccination		MMR Varicella YF All Others	Yes (See Note 52) Yes (See Note 53) Yes (See Note 53) Yes
Tuberculosis (TB) or positive PPD		MMR Varicella Zoster All Others	See Note 54 See Note 55 No Yes
Unvaccinated household contact		All	Yes
Vomiting	*mild (with or without low-grade fever)*	All	Yes
	moderate or severe (with or without fever)	All	See Note 11
Wheezing (recurrent)		Flu (LAIV) All Others	See Note 56 Yes
Zoster (history of)		All	Yes

NOTES

Note 1: Protocols have been published for safely administering influenza vaccine to persons with egg allergies. See "Prevention and Control of Influenza," MMWR 2008;57 (No. RR-7) References 222-224.

Note 2: If vaccinating persons with a history of an anaphylactic reaction to gelatin or gelatin-containing products with MMR or its component vaccines, or with varicella vaccine, extreme caution should be exercised. Before administering these vaccines to such persons, skin testing for sensitivity to gelatin can be considered. However, no specific protocols for this purpose have been published.

Note 3: Some brands or formulations still contain thimerosal as a preservative, or may contain trace amounts of thimerosal that are a remnant of the manufacturing process. Check the appropriate manufacturer's package insert for more information.

Note 4: Contraindicates vaccination only with vaccine to which reaction occurred.

Note 5: It is not known whether administering influenza antiviral medications affects the safety or efficacy of live attenuated influenza vaccine (LAIV); LAIV should not be administered until 48 hours following cessation of influenza antiviral therapy, and influenza antiviral medications should not be administered for 2 weeks following receipt of LAIV.

Note 6: The vaccine manufacturer advises that Ty21a should not be administered to persons receiving sulfonamides or other antimicrobial agents. Ty21a should be administered >24 hours after an antimicrobial dose. Mefloquine can inhibit the growth of the live Ty21a strain in vitro; if this antimalarial is administered, vaccination with Ty21a should be delayed for 24 hours.

Note 7: Antiviral drugs active against herpesviruses (e.g., acyclovir or valacyclovir) might reduce the efficacy of live attenuated varicella vaccine. These drugs should be discontinued ≥24 hours before the administration of varicella vaccine, if possible.

Note 8: "Persons taking chronic acyclovir, famciclovir, or valacyclovir should discontinue these medications at least 24 hours before administration of zoster vaccine, if possible. These medications should not be used for at least 14 days after vaccination, by which time the immunologic effect should be established."

Note 9: When [any] intramuscular vaccine is indicated for a patient with a bleeding disorder or a person receiving anticoagulant therapy, the vaccine should be administered intramuscularly if, in the opinion of a physician familiar with the patient's bleeding risk, the vaccine can be administered with reasonable safety by this route. If the patient receives antihemophilia or similar therapy, intramuscular vaccinations can be scheduled shortly after such therapy is administered. A fine needle (≤23 gauge) should be used for the vaccination and firm pressure applied to the site, without rubbing, for ≥2 minutes. The patient or family should be instructed concerning the risk for hematoma from the injection.

Note 10: Consider giving acetaminophen before DTaP and every 4 hours thereafter for 24 hours to children who have a personal or a family history of convulsions. (If an underlying neurologic disorder is involved, also see page 5.)

Note 11: Persons with moderate or severe illnesses, with or without fever, can be vaccinated as soon as they are recovering and no longer acutely ill.

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Note 12: The decision to give additional doses of DTaP to children who developed GBS within 6 weeks of a prior dose should be based on consideration of the benefits of further vaccination vs. the risk of recurrence of GBS. For example, completion of the primary series in children is justified.

Note 13: Whether influenza vaccination specifically might increase the risk for recurrence of GBS is not known; therefore, avoiding vaccinating persons who are not at high risk for severe influenza complications and who are known to have developed GBS within 6 weeks after a previous influenza vaccination is prudent. Although data are limited, for the majority of persons who have a history of GBS and who are at high risk for severe complications from influenza, the established benefits of influenza vaccination justify yearly vaccination.

Note 14: CDC recommends that persons with a history of GBS not receive MCV, although persons with a history of GBS at especially high risk for meningococcal disease (i.e., microbiologists routinely exposed to isolates of *Neisseria meningitidis*) might consider vaccination.

Note 15: Not a contraindication, but providers should evaluate the risks and benefits of administering Tdap or Td. If a decision is made to continue vaccination with tetanus toxoid, Tdap is preferred to Td if otherwise indicated.

Note 16: Persons with chronic disorders of the cardiovascular system should not get live attenuated influenza vaccine.

Note 17: Specific vaccines are recommended, or may be given, at varying times after transplant and under certain circumstances. For some vaccines, no data exist. **Use of live vaccines is indicated only among immunocompetent persons and is contraindicated for recipients after HSCT who are not presumed immunocompetent**. HSCT recipients are presumed immunocompetent at ≥24 months after HSCT if they are not on immunosuppressive therapy and do not have graft-versus-host disease. For more information, see "Guidelines for Preventing Opportunistic Infections Among Hematopoietic Stem Cell Transplant Recipients" (MMWR 2000; 49 [No RR-10]), especially Tables 4 and 6; and ACIP's "General Recommendations on Immunization" (MMWR 2006; [No RR-15]:28).

Note 18: MMR vaccination is recommended for all asymptomatic HIV-infected persons who do not have evidence of severe immunosuppression and for whom measles vaccination would otherwise be indicated. [For definition of severe immunosuppression, see 2006 AAP *Red Book*, Table 3.25, p. 382.]

Note 19: Consider the potential risks and benefits of administering rotavirus vaccine to infants with known or suspected altered immunocompetence. Children and adults who are immunocompromised because of congenital immunodeficiency, hematopoietic transplantation, or solid organ transplantation sometimes experience severe, prolonged, and even fatal rotavirus gastroenteritis. However, no safety or efficacy data are available for the administration of rotavirus vaccine to infants who are potentially immunocompromised, including . . . infants with primary and acquired immunodeficiency states, including HIV/AIDS or other clinical manifestations of infection with HIV. Data are insufficient from the clinical trials to support administration of rotavirus vaccine to infants with indeterminant HIV status who are born to mothers with HIV/AIDS.

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Note 20: **Children aged 1-8:** HIV-infected children with CD4+ T-lymphocyte percentage >15% should be considered for vaccination with the single-antigen varicella vaccine (2 doses administered 3 months apart). **Adolescents and adults:** Data are lacking; however, weighing the risk for severe disease from wild VZV and potential benefit of vaccination, vaccination may be considered (2 doses, administered 3 months apart) for HIV-infected persons with CD4+T-lymphocyte count ≥200 cells/μL in these age groups. Because data are not available on safety, immunogenicity or efficacy of MMRV vaccine in HIV infected children, MMRV should not be used when vaccinating these children.

Note 21: MMR vaccination should be considered for all symptomatic HIV-infected persons who do not have evidence of severe immunosuppression or of measles immunity. [For definition of severe immunosuppression, see 2006 AAP *Red Book*, Table 3.25, p. 382.]

Note 22: Zoster vaccine should not be administered to persons with primary or acquired immunodeficiency including persons with AIDS or other clinical manifestations of HIV, including persons with CD4+ T-lymphocyte values ≤200 per mm^3 or ≤15% of total lymphocytes.

Note 23: Do not give immune globulin products and MMR simultaneously. If unavoidable, give at different sites and revaccinate or test for seroconversion in 3 months. If MMR is given first, do not give IG for 2 weeks. If IG is given first, the interval between IG and measles vaccination depends on the product, the dose, and the indication (see Appendix D). Because of the importance of rubella immunity among childbearing-age women, the postpartum vaccination of rubella-susceptible women with rubella or MMR vaccine should not be delayed because of receipt of anti-Rho(D) globulin or any other blood product during the last trimester of pregnancy or at delivery. These women should be vaccinated immediately after delivery and, if possible, tested ≥3 months later to ensure immunity to rubella and, if necessary, to measles.

Note 24: Do not give varicella vaccine for 3-11 months (see Appendix D) after administration of blood (except washed red blood cells) or after plasma tranfusions or IG. Do not give antibody-containing products for 2 weeks after vaccination unless the benefits exceed those of vaccination. In such instances, either revaccinate or test for immunity at the appropriate intervals, and revaccinate if seronegative.

Note 25: If nasal congestion is present that might impede delivery of the vaccine to the nasopharyngeal mucosa, deferral of administration should be considered until resolution of the illness, or TIV should be administered instead.

Note 26: Persons with asthma, reactive airways disease or other chronic disorders of the pulmonary or cardiovascular systems and persons with other underlying medical conditions, including metabolic diseases such as diabetes, renal dysfunction, and hemoglobinopathies should not receive LAIV.

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Note 27: Consider the potential risks and benefits of administering rotavirus vaccine to infants with preexisting chronic gastrointestinal disease (e.g., congenital malabsorption syndromes, Hirschsprung's disease, short-gut syndrome, persistent vomiting of unknown cause). Infants with chronic gastrointestinal conditions who are not undergoing immunosuppressive therapy should benefit from rotavirus vaccine, and the benefits outweigh the theoretical risks. However, the safety and efficacy of rotavirus vaccine have not been established for infants with these conditions.

Note 28: The great majority of persons with chronic illnesses should be appropriately vaccinated. The decision whether or not to vaccinate these persons, and what vaccines to give, should be made on an individual basis.

Note 29: When cancer chemotherapy or other immunosuppressive therapy is being considered (e.g., for patients with Hodgkins disease or those who undergo organ or bone marrow transplantation), the interval between vaccination and initiation of immunosuppressive therapy should be at least 2 weeks. Vaccination during chemotherapy or radiation therapy should be avoided.

Note 30: **Preexposure:** Patients who are immunosuppressed by disease or medications should postpone preexposure vaccinations and consider avoiding activities for which rabies preexposure prophylaxis is indicated. When this course is not possible, immunosuppressed persons who are at risk for rabies should be vaccinated by the IM route and their antibody titers checked. Failure to seroconvert after the third dose should be managed in consultation with appropriate public health officials. **Postexposure:** Immunosuppressive agents should not be administered during postexposure therapy unless essential for treatment of other conditions. When postexposure prophylaxis is administered to an immunosuppressed person, it is especially important that a serum sample be tested for rabies antibody to ensure that an acceptable antibody response has developed.

Note 31: Varicella vaccine should not be administered to persons who have cellular immunodeficiencies, but persons with impaired humoral immunity may be vaccinated. Vaccination of leukemic children who are in remission and who do not have evidence of immunity to varicella should be undertaken only with expert guidance and with the availability of antiviral therapy should complications ensue. Persons without evidence of immunity who are receiving systemic steroids for certain conditions (e.g., asthma) and who are not otherwise immunocompromised may be vaccinated if they are receiving <2 mg/kg of body weight or a total of <20 mg/day of prednisone or its equivalent.

Note 32: Zoster vaccine **should not** be administered to:

- Persons with leukemia, lymphomas, or other malignant neoplasms affecting the bone marrow or lymphatic system.
- Persons on immunosuppressive therapy, including high-dose corticosteroids (≥20 mg/day of prednisone or equivalent) lasting two or more weeks. Defer vaccination for at least 1 months after discontinuation of such therapy.
- Persons with clinical or laboratory evidence of other unspecified cellular immunodeficiency.
- Persons receiving recombinant human immune mediators and immune modulators, especially the antitumor necrosis factor agents adalimumab, infliximab, and etanercept. If it is not possible to administer zoster vaccine to patients before initiation of therapy, assess the immune status of the recipient on a case-by-case basis to determine the relevant risks and benefits. Otherwise, defer vaccination for at least 1 month after discontinuation of such therapy.

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Zoster vaccine **may** be administered to:

- Patients whose leukemia is in remission and who have not received chemotherapy or radiation for at least 3 months.
- Persons on short-term corticosteroid therapy (<14 days); low to moderate dose (<20 mg/day of prednisone or equivalent); topical; intra-articular, bursal, or tendon injections; or long-term alternate-day treatments with low to moderate doses of short-acting systemic corticosteroids.
- Persons on therapy with low doses of methotrexate (≤0.4 mg/Kg/week), azathioprine (≤3.0 mg/Kg/day), or 6-mercaptopurine (≤1.5 mg/Kg/day) for treatment of rheumatoid arthritis, psoriasis, polymyositis, sarcoidosis, inflammatory bowel disease, and other conditions.
- Persons with impaired **humoral** immunity (e.g., hypogammaglobulinemia or dysgammaglobulinemia).

Note 33: Varicella vaccine should not be administered to a person with a family history of congenital or hereditary immunocefidiency in parents or siblings unless that person's immune competence has been clinically substantiated or verified by a laboratory.

Note 34: TIV is preferred for vaccinating household members, healthcare personnel, and others who have close contact with *severely* immunosuppressed persons during those periods in which the immunosuppressed person requires care in a protective environment. No preference is indicated for TIV use by those who have close contact with persons with lesser degrees of immunosuppression.

Note 35: Data suggest that infants with a history of intussusception might be at higher risk for a repeat episode than other infants. Therefore, until postlicensure data on safety of rotavirus vaccine is available, the risks and benefits of vaccination should be considered when vaccinating infants with a previous episode of intussusception.

Note 36: Whether and when to administer DTaP to children with proven or suspected underlying neurologic disorders should be decided individually. Generally, infants and children with stable neurologic conditions, including well-controlled seizures, may be vaccinated.

Note 37: ACIP recommends that children with progressive neurologic conditions not be vaccinated with Tdap until the condition stabilizes. Chronic progressive neurologic conditions that are stable in adults do not constitute a reason to delay Tdap; this is in contrast to unstable or evolving neurologic conditions (e.g., cerebrovascular events and acute encephalopathic conditions).

Note 38: Pregnant women should be vaccinated against anthrax only if the potential benefits of vaccination outweigh the potential risks to the fetus.

Note 39: The theoretical risk to the developing fetus is expected to be low. The risk associated with vaccination should be weighed against the risk for hepatitis A in women who may be at high risk for exposure to hepatitis A virus.

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Note 40: HPV vaccine is not recommended for use in pregnancy. It has not been causally associated with adverse outcomes of pregnancy or adverse events in the developing fetus. However, until additional information is available, initiation of the vaccine series should be delayed until after completion of the pregnancy. If a woman is found to be pregnant after initiating the vaccination series, the remainder of the 3-dose regimen should be delayed until after completion of the pregnancy. A vaccine in pregnancy registry has been established; report any exposure to HPV vaccine during pregnancy to 800-986-8999. No intervention is needed.

Note 41: If a pregnant woman is at increased risk for infection and requires immediate protection against polio, IPV can be administered in accordance with the recommended schedules for adults.

Note 42: Pregnant women who must travel to an area where risk of JE is high should be vaccinated when the theoretical risks of immunization are outweighed by the risk of infection to the mother and developing fetus.

Note 43: Women should avoid becoming pregnant for 4 weeks following vaccination.

Note 44: Vaccine is not contraindicated, but no data exist on its use among pregnant women.

Note 45: ACIP recommends Td when tetanus and diphtheria protection is required during pregnancy. In some situations, health-care providers can choose to administer Tdap instead of Td to add protection against pertussis. When Td or Tdap is administered during pregnancy, the second or third trimester is preferred. Data on safety, immunogenicity and the outcomes of pregnancy are not available for pregnant women who receive Tdap. Providers who choose to administer Tdap to pregnant women should discuss the lack of data with the pregnant women and are encouraged to report Tdap administration, regardless of the trimester, to the appropriate manufacturer's pregnancy registry (Boostrix to GlaxoSmithKline at 1-888-825-5349; Adacel to sanofi pasteur at 1-800-822-2463).

Note 46: Pregnant women should not be routinely vaccinated on theoretical grounds, and travel to areas where yellow fever is present should be postponed until after delivery. If international travel requirements constitute the only reason to vaccinate a pregnant woman, rather than an increased risk of infection, efforts should be made to obtain a waiver letter from the traveler's physician. Pregnant women who must travel to areas where the risk of yellow fever is high should be vaccinated.

Note 47: **HBsAg-Negative Mother:** Preterm infants weighing <2,000 g and born to HBsAg-negative mothers should have their first vaccine dose delayed until 1 month after birth or hospital discharge. For these infants, a copy of the original laboratory report indicating that the mother was HBsAg negative during this pregnancy should be placed in the infant's medical record.

HBsAg-Positive Mother: For preterm infants weighing <2,000 g, the initial vaccine dose (birth dose) should not be counted as part of the vaccine series because of the potentially reduced immunogenicity of hepatitis B vaccine in these infants; 3 additional doses of vaccine (for a total of 4 doses) should be administered beginning at age 1 or 2 months.

Mother's HBsAg Status Unknown: Preterm infants weighing <2,000 g should receive both single-antigen hepatitis B vaccine and HBIG (0.5 mL) if the mother's HBsAg status cannot be determined within 12 hours of birth. The birth dose of vaccine should not be counted as part of the 3 doses required to complete the vaccine series; 3 additional doses of vaccine (for a total of 4 doses) should be administered according to a recommended schedule on the basis of the mother's HBsAg test result.

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Note 48: ACIP supports vaccination of prematurely born infants with rotavirus vaccine if they are at least 6 weeks of age, are being or have been discharged from the hospital nursery, and are clinically stable.

Note 49: The appropriate age for initiating vaccinations in the prematurely born infant is the usual chronological age (same dosage and indications as for normal, full-term infants).

Note 50: Contraindicates vaccination only with vaccine to which reaction occurred. If tetanus toxoid is contraindicated for someone who has not completed a primary tetanus series and that person has a wound that is neither clean nor minor, give only passive vaccination, using tetanus immune globulin (TIG).

Note 51: Consider the benefits of immunity to measles, mumps, and rubella vs. the risk of recurrence or exacerbation of thrombocytopenia after vaccination, or risk from natural infections of measles or rubella. In most instances, the benefits of vaccination will be much greater than the potential risks and will justify giving MMR, particularly in view of the even greater risk of thrombocytopenia following measles or rubella disease. However, if a prior episode of thrombocytopenia occurred near the time of vaccination, it might be prudent to avoid a subsequent dose. (Also applies to MMRV.)

Note 52: Measles vaccination may temporarily suppress tuberculin reactivity. MMR vaccine may be given after, or on the same day as, TB testing. If MMR has been given recently, postpone the TB test until 4-6 weeks after administration of MMR. If giving MMR simultaneously with tuberculin skin test, use the Mantoux test, not multiple puncture tests, because the latter, if results are positive, require confirmation (and confirmation would then have to be postponed 4-6 weeks).

Note 53: No data exist for the potential degree of PPD suppression that might be associated with other parenteral live attenuated virus vaccines. Nevertheless, in the absence of data, following guidelines for measles-containing vaccine when scheduling PPD screening and administering other parenteral live attenuated virus vaccines is prudent.

Note 54: A theoretical basis exists for concern that measles vaccine might exacerbate tuberculosis. Consequently, before administering MMR to persons with untreated active tuberculosis, initiating antituberculosis therapy is advisable.

Note 55: Although no data exist regarding whether either varicella or live varicella virus vaccine exacerbates tuberculosis, vaccination is not recommended for persons who have untreated, active tuberculosis.

Note 56: LAIV should not be administered to children younger than 5 years of age with recurrent wheezing.

APPENDICES

Appendices:

Summary of Contents of Vaccines Licensed in the United States

APPENDIX A

The ACIP specifies that severe allergies to certain substances contraindicate specific vaccines (see "Allergies," pages 1 & 2). But ACIP also makes the general statement that a "serious allergic reaction [e.g., anaphylaxis] to a vaccine component" is a contraindication to any vaccine containing that component.

This table lists vaccine components (e.g., adjuvants and preservatives) found in all U.S. vaccines, as well as substances used during the manufacturing process, including vaccine-production media, that are removed from the final product and present only in trace quantities.

If in doubt about the contents of a particular vaccine, check the current package insert.
In addition to the substances listed, most vaccines contain Sodium Chloride (table salt).

Vaccine	Contains
Anthrax (BioThrax)	Aluminum Hydroxide, Amino Acids, Benzethonium Chloride, Formaldehyde or Formalin, Inorganic Salts and Sugars, Vitamins
BCG (Tice)	Asparagine, Citric Acid, Lactose, Glycerin, Iron Ammonium Citrate, Magnesium Sulfate, Potassium Phosphate
DTaP (Daptacel)	Aluminum Phosphate, Ammonium Sulfate, Casamino Acid, Dimethyl-beta-cyclodextrin, Formaldehyde or Formalin, Glutaraldehyde, 2-Phenoxyethanol
DTaP (Infanrix)	Aluminum Hydroxide, Bovine Extract, Formaldehyde or Formalin, Glutaraldhyde, 2-Phenoxyethanol, Polysorbate 80
DTaP (Tripedia)	Aluminum Potassium Sulfate, Ammonium Sulfate, Bovine Extract, Formaldehyde or Formalin, Gelatin, Polysorbate 80, Sodium Phosphate, Thimerosal*
DTaP/Hib (TriHIBit)	Aluminum Potassium Sulfate, Ammonium Sulfate, Bovine Extract, Formaldehyde or Formalin, Gelatin, Polysorbate 80, Sucrose, Thimerosal*
DTaP/IPV (Kinrix)	Aluminum Hydroxide, Bovine Extract, Formaldehyde, Gluteraldehyde, Monkey Kidney Cells, Neomycin, Polymyxin B, Polysorbate 80

APPENDIX A

Vaccine	Contains
DTaP/HepB/IPV (Pediarix)	Aluminum Hydroxide, Aluminum Phosphate, Bovine Protein, Lactalbumin Hydrolysate, Formaldehyde or Formalin, Glutaraldhyde, Monkey Kidney Tissue, Neomycin, 2-Phenoxyethanol, Polymyxin B, Polysorbate 80, Thimerosal*, Yeast Protein
DTaP/Hib/IPV (Pentacel)	2-phenoxyethanol, Aluminum Phosphate, Bovine Serum Albumin, Casamino Acid, Formaldehyde, Gluteraldehyde, MRC-5 Cellular Protein, Neomycin, Polymyxin B, Polysorbate 80
DT (sanofi)	Aluminum Potassium Sulfate, Bovine Extract, Formaldehyde or Formalin, Thimerosal (multi-dose) or Thimerosal* (single-dose)
DT (Massachusetts)	Aluminum Hydroxide, Formaldehyde or Formalin
Hib (ACTHib)	Ammonium Sulfate, Formaldehyde or Formalin, Sucrose
Hib (PedvaxHib)	Aluminum Hydroxyphosphate Sulfate
Hib/Hep B (Comvax)	Amino Acids, Aluminum Hydroxyphosphate Sulfate, Dextrose, Formaldehyde or Formalin, Mineral Salts, Sodium Borate, Soy Peptone, Yeast Protein
Hep A (Havrix)	Aluminum Hydroxide, Amino Acids, Formaldehyde or Formalin, MRC-5 Cellular Protein, Neomycin Sulfate, 2-Phenoxyethanol, Phosphate Buffers, Polysorbate
Hep A (Vaqta)	Aluminum Hydroxyphosphate Sulfate, Bovine Albumin or Serum, DNA, Formaldehyde or Formalin, MRC-5 Cellular Protein, Sodium Borate
Hep B (Engerix-B)	Aluminum Hydroxide, Phosphate Buffers, Thimerosal*, Yeast Protein
Hep B (Recombivax)	Aluminum Hydroxyphosphate Sulfate, Amino Acids, Dextrose, Formaldehyde or Formalin, Mineral Salts, Potassium Aluminum Sulfate, Soy Peptone, Yeast Protein
HepA/HepB (Twinrix)	Aluminum Hydroxide, Aluminum Phosphate, Amino Acids, Dextrose, Formaldehyde or Formalin, Inorganic Salts, MRC-5 Cellular Protein, Neomycin Sulfate, 2-Phenoxyethanol, Phosphate Buffers, Polysorbate 20, Thimerosal*, Vitamins, Yeast Protein

APPENDIX A

Vaccine	Contains
Human Papillomavirus (HPV) (Gardasil)	Amino Acids, Amorphous Aluminum Hydroxyphosphate Sulfate, Carbohydrates, L-histidine, Mineral Salts, Polysorbate 80, Sodium Borate, Vitamins
Influenza (Afluria)	Beta-propiolactone, Calcium Chloride, Ovalbumin, Neomycin Sulfate, Polymyxin B, Potassium Chloride, Potassium Phosphate, Sodium Phosphate, Sodium Taurodeoxycholate, Thimerosal (multidose containers)
Influenza (Fluarix)	Egg Albumin (Ovalbumin), Egg Protein, Formaldehyde or Formalin, Gentamicin, Hydrocortisone, Octoxynol-10, α-Tocopheryl Hydrogen Succinate, Polysorbate 80, Sodium Deoxycholate, Sodium Phosphate, Thimerosal*
Influenza (Flulaval)	Egg Albumin (Ovalbumin), Egg Protein, Formaldehyde or Formalin, Sodium Deoxycholate, Phosphate Buffers, Thimerosal
Influenza (Fluvirin)	Beta-Propiolactone , Egg Protein, Neomycin, Polymyxin B, Polyoxyethylene 9-10 Nonyl Phenol (Triton N-101, Octoxynol 9), Thimerosal (multidose containers), Thimerosal* (single-dose syringes)
Influenza (Fluzone)	Egg Protein, Formaldehyde or Formalin, Gelatin, Octoxinol-9 (Triton X-100), Thimerosal (multidose containers)
Influenza (FluMist)	Chick Kidney Cells, Egg Protein, Gentamicin Sulfate, Monosodium Glutamate, Sucrose Phosphate Glutamate Buffer
IPV (Ipol)	Calf Serum Protein, Formaldehyde or Formalin, Monkey Kidney Tissue, Neomycin, 2-Phenoxyethanol, Polymyxin B, Streptomycin
Japanese Encephalitis (JE-Vax)	Formaldehyde or Formalin, Gelatin, Mouse Serum Protein, Polysorbate 80, Thimerosal
Measles (Attenuvax)	Amino Acid, Bovine Albumin or Serum, Chick Embryo Fibroblasts, Gelatin, Glutamate, Human Albumin, Neomycin, Phosphate, Sodium Phosphate, Sorbitol, Sucrose, Vitamins
Meningococcal (Menactra)	Formaldehyde or Formalin, Phosphate Buffers
Meningococcal (Menomune)	Lactose, Thimerosal (10-dose vials only)

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Vaccine	Contains
Mumps (Mumpsvax)	Amino Acid, Bovine Albumin or Serum, Chick Embryo Fibroblasts, Human Serum Albumin, Gelatin, Glutamate, Neomycin, Phosphate Buffers, Sorbitol, Sucrose, Vitamins
MMR (MMR-II)	Amino Acid, Bovine Albumin or Serum, Chick Embryo Fibroblasts, Human Serum Albumin, Gelatin, Glutamate, Neomycin, Phosphate Buffers, Sorbitol, Sucrose, Vitamins
MMRV (ProQuad)	Bovine Albumin or Serum, Gelatin, Human Serum Albumin, Monosodium L-glutamate, MRC-5 Cellular Protein, Neomycin, Sodium Phosphate Dibasic, Sodium Bicarbonate, Sorbitol, Sucrose, Potassium Phosphate Monobasic, Potassium Chloride, Potassium Phosphate Dibasic
Pneumococcal (Pneumovax)	Bovine Protein, Phenol
Pneumococcal (Prevnar)	Aluminum Phosphate, Amino Acid, Soy Peptone, Yeast Extract
Rabies (Imovax)	Human Serum Albumin, Beta-Propiolactone, MRC-5 Cellular Protein, Neomycin, Phenol Red (Phenolsulfonphthalein), Vitamins
Rabies (RabAvert)	Amphotericin B, Beta-Propiolactone , Bovine Albumin or Serum, Chicken Protein, Chlortetracycline, Egg Albumin (Ovalbumin), Ethylenediamine-Tetraacetic Acid Sodium (EDTA), Neomycin, Potassium Glutamate
Rotavirus (RotaTeq)	Cell Culture Media, Fetal Bovine Serum, Sodium Citrate, Sodium Phosphate Monobasic Monohydrate, Sodium Hydroxide Sucrose, Polysorbate 80
Rotavirus (Rotarix)	Amino Acids, Calcium Carbonate, Dextran, Dulbecco's Modified Eagle Medium (DMEM), Sorbitol, Sucrose, Xanthan
Rubella (Meruvax II)	Bovine Albumin or Serum, Gelatin, Human Serum Albumin, Neomycin, Phosphate Buffers, Sodium Phosphate, Sorbitol
Td (Decavac)	Aluminum Potassium Sulfate, Bovine Extract, Formaldehyde or Formalin, 2-Phenoxyethanol, Peptone, Thimerosal*

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Vaccine	Contains
Td (Massachusetts)	Aluminum Hydroxide, Aluminum Phosphate, Formaldehyde or Formalin, Thimerosal (some multidose containers)
Tdap (Adacel)	Aluminum Phosphate, Formaldehyde or Formalin, Glutaraldehyde, 2-Phenoxyethanol
Tdap (Boostrix)	Aluminum Hydroxide, Bovine Extract, Formaldehyde or Formalin, Glutaraldehyde, Polysorbate 80
Typhoid (inactivated – Typhim Vi)	Disodium Phosphate, Monosodium Phosphate, Phenol, Polydimethylsilozone, Hexadecyltrimethylammonium Bromide
Typhoid (oral – Ty21a)	Amino Acids, Ascorbic Acid, Bovine Protein, Casein, Dextrose, Galactose, Gelatin, Lactose, Magnesium Stearate, Sucrose, Yeast Extract
Vaccinia (ACAM2000)	Glycerin, Human Serum Albumin, Neomycin, Phenol, Polymyxin B
Varicella (Varivax)	Bovine Albumin or Serum, Ethylenediamine-Tetraacetic Acid Sodium (EDTA), Gelatin, Monosodium L-Glutamate, MRC-5 DNA and Cellular Protein, Neomycin, Potassium Chloride, Potassium Phosphate Monobasic, Sodium Phosphate Monobasic, Sucrose
Yellow Fever (YF Vax)	Egg Protein, Gelatin, Sorbitol
Zoster (Zostavax)	Bovine Calf Serum, Hydrolyzed Porcine Gelatin, Monosodium L-glutamate, MRC-5 DNA and Cellular Protein, Neomycin, Potassium Phosphate Monobasic, Potassium Chloride, Sodium Phosphate Dibasic, Sucrose

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*Where "thimerosal" is marked with an asterisk (*) it indicates that the product should be considered equivalent to thimerosal-free products. This vaccine may contain trace amounts (<3 mcg) of mercury left after post-production thimerosal removal, but these amounts have no biological effect. *JAMA* 1999;282(18) and *JAMA* 2000;283(16)

Adapted from Grabenstein JD. *ImmunoFacts*: *Vaccines* & *Immunologic Drugs*. St. Louis, MO: Wolters Kluwer Health Inc.; 2006 and individual products' package inserts. All reasonable efforts have been made to ensure the accuracy of this information, but manufacturers may change product contents before that information is reflected here.

APPENDIX B

Latex in Vaccine Packaging

If a person reports a severe (anaphylactic) allergy to latex, vaccines supplied in vials or syringes that contain natural rubber should not be administered, unless the benefit of vaccination outweighs the risk of an allergic reaction to the vaccine. For latex allergies other than anaphylactic allergies (e.g., a history of contact allergy to latex gloves), vaccines supplied in vials or syringes that contain dry natural rubber or rubber latex can be administered.

The following table is accurate, to the best of our knowledge, as of July 2008. If in doubt, check the package insert for the vaccine in question.

Vaccine		Latex?
Anthrax (BioThrax)		YES – Vial.
Comvax		YES – Vial
DTaP	Daptacel	YES – Vial
	Infanrix	YES – Syringe NO – Vial
	Tripedia	YES – Vial
DT (Generic)		YES – Vial
Hib	PedvaxHIB	Yes – Vial
	ActHIB	YES – Diluent vial NO – Lyophilized vaccine vial
Hepatitis A	Havrix	YES – Syringe NO – Vial
	Vaqta	YES – Vial YES – Syringe
Hepatitis B	Engerix-B	YES – Syringe NO – Vial
	Recombivax HB	YES – Vial
HPV (Gardasil)		NO
Influenza	Fluarix	YES – Syringe
	Fluvirin	NO
	Fluzone	NO
	FluLaval	NO
	FluMist	NO
	Afluria	NO
Japanese Encephalitis (JE-Vax)		NO
Kinrix		YES – Syringe NO – Vial
MMR (M-M-R II)		NO
MMRV (ProQuad)		NO
Measles (Attenuvax)		NO
Mumps (Mumpsvax)		NO

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Vaccine		Latex?
Rubella (Meruvax II)		NO
Meningococcal	Menomune	YES – Vial
	Menactra	YES – Vial
Pediarix		YES – Syringe NO – Vial
Pentacel		NO
Pneumococcal	Pneumovax 23	NO
	Prevnar	YES – Vial
Polio (IPOL)		YES – Syringe NO – Vial
Rabies	Imovax Rabies	NO
	RabAvert	NO
Rotavirus	RotaTeq	NO
	Rotarix	YES – Applicator NO– Vial & Transfer Adapter
Td	Decavac	NO – Vial NO – Syringe
	Generic	YES – Vial YES – Syringe
Tdap	Adacel	NO
	Boostrix	YES – Syringe NO – Vial
TriHIBit		YES – Vial
Twinrix		YES – Syringe NO – Vial
Typhoid	Typhim Vi	NO
	Vivotif Berna	N/A
Varicella (Varivax)		NO
Vaccinia (Smallpox)	ACAM2000	NO
Yellow Fever (YF-Vax)		YES – Vial
Zoster (Shingles) (Zostavax)		NO

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APPENDIX C

Reaction After a Previous Dose of Diphtheria-, Tetanus- or Pertussis-Containing Vaccine

Symptom or Condition	Vaccine	Vaccinate?
Arthus reaction, following tetanus- and/ or diphtheria toxoid-containing vaccine (including MCV)	DTaP Tdap Td/DT	See Note C1 See Note C1 See Note C1
Collapse or shock-like state within 48 hours of dose	DTaP Tdap Td/DT	See Note C2 Yes Yes
Encephalopathy within 7 days after dose, not attributable to an identifiable cause	DTaP Tdap Td/DT	No No Yes
Extensive limb swelling that was not an Arthus reaction	DTaP Tdap Td/DT	Yes Yes Yes
Family history of any adverse event after a dose	DTaP Tdap Td/DT	Yes (See Note C3) Yes Yes
Fever of <40.5°C (105°F) within 48 hours after a dose	DTaP Tdap Td/DT	Yes (See Note C3) Yes Yes
Fever of ≥40.5°C (105°F) within 48 hours after a dose, not attributable to another cause	DTaP Tdap Td/DT	See Notes C2 & C3 Yes Yes
Guillain-Barré syndrome (GBS) within 6 weeks after a dose	DTaP Tdap Td/DT	See Note C4 See Note C5 See Note C5
Persistent, inconsolable crying lasting for 3 or more hours, occurring within 48 hours of a dose	DTaP Tdap Td/DT	See Note C2 Yes Yes
Seizures within 3 days after a dose	DTaP Tdap Td/DT	See Notes C2 & C3 Yes Yes

Note C1: Providers should carefully review the medical history to verify the diagnosis of an Arthus reaction, and can consult with an allergist or immunologist. If an Arthus reaction was likely, consider deferring DTaP, Tdap or Td vaccination until at least 10 years have elapsed since the last tetanus toxoid-containing and/or diphtheria toxoid-containing vaccine was received. If the Arthus reaction was associated with a vaccine that contained diphtheria toxoid without tetanus toxoid (e.g., MCV), deferring Tdap or Td might leave the patient inadequately protected against tetanus. In this situation, if the last tetanus toxoid-containing vaccine was ≥10 years earlier, providers can obtain a serum antitetanus level to evaluate the need for tetanus vaccination (antitetanus levels ≥0.1 IU/mL are considered protective) or administer TT.

Note C2: Not a contraindication, but a precaution. Consider carefully the benefits and risks of this vaccine under these circumstances. If the risks are believed to outweigh the benefits, withhold the vaccination; if the benefits are believed to outweigh the risks (for example, during an out-break or foreign travel), give the vaccine.

Note C3: Consider giving acetaminophen before DTaP and every 4 hours thereafter for 24 hours.

Note C4: The decision to give additional doses of DTaP should be based on consideration of the benefits of further vaccination vs. the risk of recurrence of GBS. For example, completion of the primary series in children is justified.

Note C5: Not a contraindication, but providers should evaluate the risks and benefits of administering Tdap or Td. If a decision is made to continue vaccination with tetanus toxoid, Tdap is preferred to Td if otherwise indicated.

APPENDIX D

Suggested Intervals Between Administration of Immune Globulin Preparations and Measles- or Varicella-Containing Vaccine (Does not include zoster vaccine [Zostavax])

Product / Indication	Dose, including mg immunoglobulin G (IgG)/kg body weight	Recommended interval before measles- or varicella-containing vaccine
RSV monoclonal antibody (Synagis™)[1]	15 mg/kg intramuscularly (IM)	None
Tetanus IG (TIG)	250 units (10 mg IgG/kg) IM	3 months
Hepatitis A IG		
Contact prophylaxis	0.02 mL/kg (3.3 mg IgG/kg) IM	3 months
International travel	0.06 mL/kg (10 mg IgG/kg) IM	3 months
Hepatitis B IG (HBIG)	0.06 mL/kg (10 mg IgG/kg) IM	3 months
Rabies IG (HRIG)	20 IU/kg (22 mg IgG/kg) IM	4 months
Measles prophylaxis IG		
Standard (i.e., non-immunocompromised) contact	0.25 mL/kg (40 mg IgG/kg) IM	5 months
Immunocompromised contact	0.50 mL/kg (80 mg IgG/kg) IM	6 months
Blood tranfusion		
Red blood cells (RBCs), washed	10 mL/kg negligible IgG/kg intravenously (IV)	None
RBCs, adenine-saline added	10 mL/kg (10 mg IgG/kg) IV	3 months
Packed RBCs (Hct 65%)[2]	10 mL/kg (60 mg IgG/kg) IV	6 months
Whole blood (Hct 35%-50%)[2]	10 mL/kg (80-100 mg IgG/kg) IV	6 months
Plasma/platelet products	10 mL/kg (160 mg IgG/kg) IV	7 months
Cytomegalovirus intravenous immune globulin (IGIV)	150 mg/kg maximum	6 months
IGIV		
Replacement therapy for immune deficiencies[3]	300-400 mg/kg IV[3]	8 months
Immune thrombocytopenic purpura	400 mg/kg IV	8 months
Immune thrombocytopenic purpura	1000 mg/kg IV	10 months
Postexposure varicella prophylaxis[4]	400 mg/kg IV	8 months
Kawasaki disease	2 g/kg IV	11 months

This table is not intended for determining the correct indications and dosages for using antibody-containing products. Unvaccinated persons might not be fully protected against measles during the entire recommended interval, and additional doses of immune globulin or measles vaccine might be indicated after measles exposure. Concentrations of measles antibody in an immune globulin preparation can vary by manufacturer's lot. Rates of antibody clearance after receipt of an immune globulin preparation also might vary. Recommended intervals are extrapolated from an estimated half-life of 30 days for passively acquired antibody and an observed interference with the immune response to measles vaccine for 5 months after a dose of 80 mg IgG/kg.

Note 1: Contains antibody only to respiratory syncytial virus.

Note 2: Assumes a serum IgG concentration of 16 mg/mL.

Note 3: Measles and varicella vaccinations are recommended for children with asymptomatic or mildly symptomatic human immunodeficiency virus (HIV) infection but are contraindicated for persons with severe immunosuppression from HIV or any other immunosuppressive disorder.

Note 4: The investigational product VariZIG, similar to licensed VZIG, is a purifi ed human immune globulin preparation made from plasma containing high levels of anti-varicella antibodies (immunoglobulin class G [IgG]). When indicated, health-care providers should make every effort to obtain and administer VariZIG. In situations in which administration of VariZIG does not appear possible within 96 hours of exposure, administration of immune globulin intravenous (IGIV) should be considered as an alternative. IGIV also should be administered within 96 hours of exposure. Although licensed IGIV preparations are known to contain anti-varicella antibody titers, the titer of any specific lot of IGIV that might be available is uncertain because IGIV is not routinely tested for antivaricella antibodies. The recommended IGIV dose for postexposure prophylaxis of varicella is 400 mg/kg, administered once. For a pregnant woman who cannot receive VariZIG within 96 hours of exposure, clinicians can choose either to administer IGIV or closely monitor the woman for signs and symptoms of varicella and institute treatment with acyclovir if illness occurs. (CDC. A new product for postexposure prophylaxis available under an investigational new drug application expanded access protocol. MMWR 2006;55:209-10.)

APPENDIX E

Vaccinia (Smallpox) Vaccine (Routine, non-emergency use*)

Symptom or Condition	Vaccinate with Smallpox?
Anaphylactic allergy to : neomycin polymyxin B	No No
Age <1 year <18 years	 No Not recommended
Antimicrobial therapy (current)	Yes
Breastfeeding (vaccinate lactating mother)	No
Convulsions (fits, seizures) in recipient, or family history	Yes
Eczema or atopic dermatitis (presence or history of)	No
Eye disease (inflammatory, requiring steroid treatment)	See Note E1
Guillain Barré syndrome (GBS), history of	Yes
Heart conditions	No See Note E2
HIV infection (symptomatic or asymptomatic)	No
IG administration, recent or simultaneous	Yes
Illness Mild acute (with or without low-grade fever) Moderate or severe acute (with or without fever)	Yes See Note E3
Reaction to previous dose of smallpox vaccine Anaphylactic (life-threatening) Local (mild-to-moderate soreness, redness, swelling	 No Yes
Simultaneous administration with other vaccines With varicella vaccine With all other vaccines	 No (See Note E4) Yes (See Note E5)
Skin condition (acute, chronic or exfoliative) in recipient or household contact	No (See Note E6)
Sudden infant death syndrome (SIDS), family history	Yes

* Vaccinia Vaccination During a Smallpox Emergency: No absolute contraindications exist regarding vaccination of a person with a high-risk exposure to smallpox. Persons at greatest risk for experiencing serious vaccination complications are also at greatest risk for death from smallpox. If a relative contraindication to vaccination exists, the risk for experiencing serious vaccination complications must be weighed against the risk for experiencing a potentially fatal smallpox infection. When the level of exposure risk is undetermined, the decision to vaccinate should be made after prudent assessment by the clinician and the patient of the potential risks versus the benefits of smallpox vaccination.

Symptom or Condition	Vaccinate with Smallpox?
Steroid eye drops	No
Thrombocytopenia, or history of thrombocytopenic purpura	Yes
Tuberculin skin testing, performed simultaneously with vaccination	Yes (See Note E7)

Household contact (i.e., can a person be vaccinated who has a household contact who):

- is allergic to a vaccine component?	Yes
- is breastfeeding?	Yes
- is a child or adolescent?	Yes (See Note E8)
- has (or has a history of) eczema or atopic dermatitis?	No
- has HIV infection?	No
- has altered immunocompetence?	No
- is pregnant?	No
- has an acute, chronic or exfoliative skin condition?	No (See Note E6)
- has a heart condition?	Yes

Note E1: Persons with inflammatory eye disease can be at increased risk for inadvertent inoculation as a result of touching or rubbing the eye. Therefore, deferring vaccination of persons with inflammatory eye diseases requiring steroid treatment is prudent until the condition resolves and the course of therapy is complete.

Note E2: As a precaution, a patient who has been diagnosed by a doctor as having a heart condition with or without symptom should not get the smallpox vaccine at this time while experts continue their investigations. These conditions include known coronary disease including previous myocardial infarction or angina, congestive heart failure, cardiomyopathy, stroke or transient ischemic attack, chest pain or shortness of breath with activity, or other heart conditions under the care of a doctor.
In addition, a patient should not get smallpox vaccine who has 3 or more of the following factors:
- has been diagnosed with high blood pressure
- has been diagnosed with high blood cholesterol
- has been diagnosed with diabetes or high blood sugar
- has a first degree relative who had a heart condition before the age of 50
- smokes cigarettes

Note E3: Persons with moderate or severe illnesses, with or without fever, can be vaccinated as soon as they are recovering and no longer acutely ill.

Note E4: Varicella vaccine and smallpox vaccine should be administered ≥4 weeks apart.

Note E5: There is a theoretical risk that the administration of multiple live virus vaccines within 4 weeks of one another, if not given on the same day, will result in a suboptimal immune response. Parenterally administered live vaccines, and live attenuated influenza vaccine, when not administered on the same day, should be administered ≥4 weeks apart whenever possible. If these live vaccines are separated by <4 weeks, the vaccine administered second should not be counted as a valid dose and should be repeated ≥4 weeks after the last, invalid, dose.

Note E6: Vaccination may be administered after condition resolves. (Recommendations differ for eczema and atopic dermatitis. See page 23)

Note E7: No data exist for the potential degree of PPD suppression that might be associated with parenteral live attenuated virus
vaccines (other than measles). Nevertheless, in the absence of data, following guidelines for measles-containing vaccine
when scheduling PPD screening and administering other parenteral live attenuated virus vaccines is prudent.

Note E8: Not a contraindication, but ACIP recognizes that programs might defer vaccination of household contacts of infants <1 year of age because of data indicating a higher risk for adverse events among primary vacinees in this age group, compared with that among older children.

Quick Reference

APPENDIX F

Contraindications and Precautions to Routine Childhood & Adolescent Vaccinations BY VACCINE

For more complete and detailed information, see pages 2 through 6, or read the ACIP's recommendations for the indivdual vaccines (www.cdc.gov/vaccines/pubs/acip-list.htm).

Contraindications and Precautions to Routine Childhood & Adolescent Vaccinations BY VACCINE	
DTaP	
Contraindications • Anaphylactic reaction to a prior dose of the vaccine or any of its components • Encephalopathy within 7 days of a previous dose of DTaP or DTP (use DT instead of DTaP)	Precautions • Moderate or severe acute illness • Underlying unstable, evolving neurologic disorder • Any of these conditions within the specified time after a previous dose of DTaP or DTP - Fever of ≥ 40.5°C (105°F) unexplained by another cause (within 48 hours) - Collapse or shock-like state (within 48 hours) - Persistent, inconsolable crying lasting ≥3 hours (within 48 hours) - Seizure or convulsion (within 72 hours) - Guillain-Barré syndrome (within 6 weeks)
Tdap	
Contraindications • Anaphylactic reaction to a prior dose of the vaccine or any of its components • Encephalopathy within 7 days of a previous dose of DTaP or DTP (use Td instead of Tdap)	Precautions • Moderate or severe acute illness • History of an Arthus reaction following a previous dose of a tetanus-containing and/or diphtheria toxoid-containing vaccine, including meningococcal conjugate vaccine.
Hepatitis A	
Contraindications • Anaphylactic reaction to a prior dose of the vaccine or any of its components (e.g., 2-phenoxyethanol, alum)	Precautions • Moderate or severe acute illness
Hepatitis B	
Contraindications • Anaphylactic reaction to a prior dose of the vaccine or any of its components (e.g., baker's yeast)	Precautions • Moderate or severe acute illness

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Contraindications and Precautions to Routine Childhood & Adolescent Vaccinations BY VACCINE

Hib	
Contraindications • Anaphylactic reaction to a prior dose of the vaccine or any of its components	Precautions • Moderate or severe acute illness
HPV	
Contraindications • Anaphylactic reaction to a prior dose of the vaccine or any of its components (e.g., yeast). • Pregnancy	Precautions • Moderate or severe acute illness
Influenza (inactivated)	
Contraindications • Anaphylactic reaction to a prior dose of the vaccine or any of its components (e.g., eggs)	Precautions • Moderate or severe acute illness
Influenza (LAIV)	
Contraindications • Anaphylactic reaction to a prior dose of the vaccine or any of its components (e.g., eggs) • Chronic illness of pulmonary system (including asthma or Reactive Airway Disease), or cardiovascular system; metabolic disorder (e.g., diabetes); hemoglobinopathies (e.g., sickle cell disease) • Immunodeficiency • Aspirin or salicylate therapy (children & adolescents) • Pregnancy • History of Guillian-Barré syndrome	Precautions • Moderate or severe acute illness
IPV	
Contraindications • Anaphylactic reaction to a prior dose of the vaccine or any of its components (e.g., neomycin, streptomycin, polymyxin B)	Precautions • Moderate or severe acute illness
MCV	
Contraindications • Anaphylactic reaction to a prior dose of the vaccine or any of its components	Precautions • Moderate or severe acute illness

APPENDIX F

Contraindications and Precautions to Routine Childhood & Adolescent Vaccinations BY VACCINE

MMR	
Contraindications • Anaphylactic reaction to a prior dose of the vaccine or any of its components (e.g., gelatin, neomycin) • Pregnancy • Immunodeficiency • Untreated active tuberculosis	Precautions • Moderate or severe acute illness • Recent administration of antibody-containing blood products • Thrombocytopenia/ thrombocytopenic purpura (now or by history)
PCV7	
Contraindications • Anaphylactic reaction to a prior dose of the vaccine or any of its components (e.g., yeast)	Precautions • Moderate or severe acute illness
Rotavirus	
Contraindications • Anaphylactic reaction to a prior dose of the vaccine or any of its components	Precautions • Moderate or severe acute illness, including gastroenteritis • Immune deficiency for any reason • Administration of antibody-containing blood products within the past 42 days • Preexisting chronic GI disease • History of intussusception
Varicella	
Contraindications • Anaphylactic reaction to a prior dose of the vaccine or any of its components (e.g., gelatin, neomycin) • Pregnancy • Immunodeficiency • Untreated active tuberculosis	Precautions • Moderate or severe acute illness • Recent administration of antibody-containing blood products
Zoster	
Contraindications • History of anaphylactic reaction to any vaccine component (e.g., gelatin, neomycin) • Immunodeficiency • Pregnancy	Precautions • Moderate or severe acute illness